ENVIRONMENTAL ASSESSMENT PROGRAM POLICY

CHAPTER 4: ***PUBLIC INFORMATION AND EDUCATION***

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Guidelines for Technical Document Review

Purpose: These guidelines provide staff with direction on review procedures for technical documents created by EAP. Examples of review steps for various types of technical documents are included.

The following guidelines are adopted as Environmental Assessment Program Policy 4-01.

Approved: _____ **April 18, 2000**

Bill Backous
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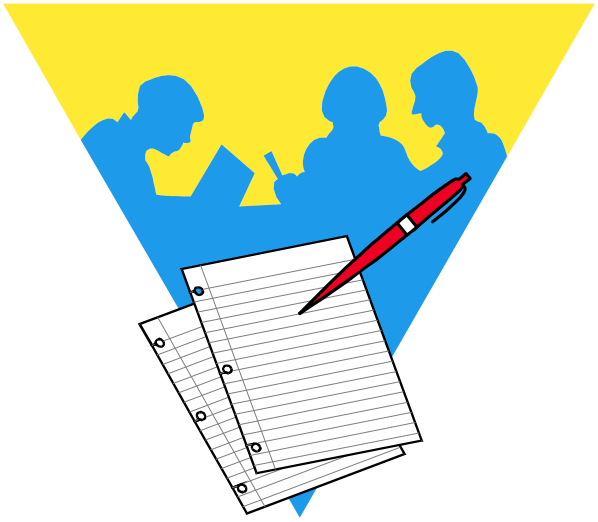
Date

Guidelines for Technical Document Review

Environmental Assessment Program



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Intent of this Document

These guidelines provide Environmental Assessment Program (EAP) staff with direction on review procedures for technical documents created by EAP. Examples of review steps for various types of technical documents are included. Appropriate review is key to ensuring high quality products, and must be an integral step in planning and implementing any project resulting in a report.

This is not intended to serve as a “cookie cutter” or "one size fits all" guidance document. Authors, supervisors, and section managers are expected to use their best professional judgement to determine the appropriate level of review for their project reports. This document is provided to help make these decisions.

What is Technical Document Review? Why is it Needed?

To assist Ecology and citizens of the state in understanding environmental issues and making well-informed decisions, documents produced by EAP need to be clear, accurate, and well reasoned.

Document review is critical to this goal, as are sound planning and study design.

One important element in designing and implementing high quality studies is "peer input." Peer input includes early discussion of study design with coworkers and technical experts, as well as supervisors and clients, to ensure a successful study. Implementation of the study design also benefits by peer input. Peer input is not a substitute for technical/ scientific review (peer review) of the draft report.

These guidelines use the inclusive term "document review" for all types of review (see below) and includes reviews by supervisors, technical experts, clients, coworkers, and others. These reviews can be conducted by EAP staff, staff of other Ecology programs, or scientists working for organizations other than Ecology. The focus of a specific review will vary depending on who conducts the review and their "charge." (A reviewer's charge identifies specific questions and concerns the author expects the reviewer to address. It can also invite general comments on the document.)

The focus of specific reviews include:

- Review for clarity and readability. Before the document is circulated for technical or policy reviews, it should be clear and readable. Reviews for clarity and readability should address overall organization, use of direct and concise language, spelling, and correct English usage.

- Review of technical and scientific content (often called "peer review"). This is a critical, technical evaluation of the document by an objective expert. It enhances the document by ensuring that the document and its recommendations are based on sound, credible science.

- Review for coherence with agency policy. Documents need to be consistent with agency practice and policy. The text should not create needless controversy. Review by supervisor, client, and section manager helps to ensure policy coherence.

The quality of all reviews is dependent on the reviewer's competence, dedication, and independence.

The specifics of the review should match the importance and complexity of the document. Examples included here elucidate the degree of review appropriate for various documents (see *Types of Documents*).

External review is advisable when the work is extensive in scope, includes other agencies, or supports especially important decisions. In other situations, it may not be practical to include external reviewers, despite the potential advantages. A colleague in the author's work group may be the technical reviewer, for instance. In these cases, both reviewers and author should remember their obligation to keep the review objective and independent. Reviewers must provide their best objective, critical review and specific suggestions for improving the draft. The author needs to receive this review with the same respect and openness with which he/she receives reviews from external reviewers.

The Review Process

1. Plan the review process (see *Staff Responsibilities*). A checklist is provided to help in this planning process (see Appendix B*, Reference Materials for Reviewers*). Examples are also included (see *Types of Documents*).

2. To identify important issues, develop a clear, focused charge for each reviewer and invite suggestions for improvement. The time invested in developing a good charge is well spent, and is crucial for effective review.

3. Prepare and maintain a review record (see *Author Responsibilities*). This includes all materials considered by the individual reviewers, their written comments, other input, and responses from the author.

4. Make recommended changes to document and respond to the reviewer's comments (see *Author Responsibilities*).

The review process needs to be integrated with related activities like the development of a communication plan (Focus Sheets, News Releases) and the implementation of report recommendations.

Staff Responsibilities

Supervisor/Section Manager

The supervisor, section manager, and author are responsible for collaboratively planning the document review process. This should be done during the project-planning phase to allow adequate time in the project schedule for all reviews. Factors that can affect this process include project deadlines, costs (e.g., for external reviewers), complexity and importance of the work, and potential controversies. The ultimate responsibility for the review process lies with the section manager.

Review independence generally improves the review. External review is advisable. If reviewers are from the same organizational unit as the author, the supervisor needs to give reviewers the freedom necessary to provide an independent review. Reviewers should have no real or perceived conflicts of interest.

Along with the author, the supervisor and section manager bear responsibility for the final report.

Author

In this document is it assumed that the author is the project leader. The project leader's responsibilities include (1) working with the supervisor and Section Manager to plan the document review process and (2) circulating drafts to the appropriate reviewers.

The author has a responsibility to provide a clear, complete, and accurate review draft. The draft is a reflection of the author's abilities and efforts. A well-written, well-proofed draft is a credit to the skills and efforts of the author. Conversely, a hastily prepared draft reflects poorly on the author and puts unnecessary responsibility on reviewers.

When comments are received, it is the author's responsibility to carefully consider, fairly weigh, and respond to all comments. This response may take the form of incorporating new language into the document; it may also take the form of discussing the comments directly with the reviewer or preparing a formal responsiveness summary to comments.

Comments that cannot be resolved by author and reviewer should be elevated to the section manager for discussion and resolution.

The author should acknowledge and honor the reviewer's efforts. A careful, open-minded response to comments is the reviewer's best thanks. Another important avenue for recognizing the reviewer's efforts is in the *Acknowledgements* section of the final document.

Reviewer

Reviewers must be unbiased and objective. Independence enhances the process and is most easily achieved when reviewers are from organizational units other than the author.

Reviewers need to maintain the confidentiality of the draft document and complete their reviews on schedule. They need to understand their role in the review process and their charge, and focus their efforts accordingly.

Reviewers have a responsibility to read carefully all materials provided. Comments and recommendations should be specific whenever possible. Suggestions should be positive, and include recommendations on ways to improve the draft document.

Reviewers should note especially effective aspects of the document. Positive feedback gives authors valuable information about the successful aspects of the works so these attributes can be included in future documents.

Reference Materials for Reviewers (Appendix B) includes specific aspects of document review for technical reports.

Types of Documents

Technical Report

These reports are shorter, with less need for extensive review.

◊ Author, supervisor, and section manager collaborate to determine review process for project.

◊ Author ensures study design and implementation include peer input.

◊ Author prepares draft.

◊ Optional: Other staff review document before author submits to supervisor.

◊ Supervisor reviews document for readability, completeness, and technical merit.

◊ Author revises draft.

◊ Author distributes revised draft to internal Ecology reviewers (section manager, client, other internal reviewers).

Is report consistent with agency policy?

Are conclusions supported by data?

◊ Author prepares final draft based on internal agency review comments. Author responds to reviewers' comments.

◊ Author submits final draft to support staff for formatting and grammar check.

◊ Support staff gives final report to author, supervisor, and section manager for approval before printing and posting to the Internet.

◊ Support staff prints, distributes, and posts final report.

Report of Major Investigation

These reports are longer, with internal and external review.

◊ Author, supervisor, and section manager collaborate to determine review process for project.

◊ Author ensures study design and implementation includes peer input.

◊ Author prepares draft.

◊ Optional: Other staff review document before submitting to supervisor.

◊ Supervisor reviews draft for readability, completeness, and technical merit.

◊ Author revises draft.

◊ Author distributes revised draft to internal Ecology reviewers (section manager, technical specialist, client, other internal reviewers - optional).

Is report consistent with agency policy?

Are conclusions supported by data?

◊ Author prepares next draft based on internal agency review comments. Author responds to reviewers' comments.

◊ Author submits draft to support staff for formatting and grammar check.

◊ Author reviews this draft from support staff.

◊ Author, client, and supervisor collaborate to finalize external reviewer list.

Reviewer options include: PIO, AGO, tribes, regulated facilities, science board, other agencies, public groups (does not include public comment), consultants, contracted scientists.

◊ Author revised final draft based on external review comments. Author responds to reviewers' comments.

◊ Author submits final draft to supervisor, section manager, and client. The policy review is included here.

◊ Author incorporates comments and submits to support staff for formatting.

◊ Support staff gives final report to author, supervisor, and section manager for approval before printing and posting to the Internet.

◊ Support staff prints, distributes, and posts final report.

Total Maximum Daily Load Report

◊ Author, supervisor, and section manager collaborate to determine review process for project.

◊ Author ensures study design and implementation includes peer input.

◊ Author prepares draft.

◊ Optional: Other staff review before submitting to supervisor

◊ Supervisor reviews draft for readability, completeness, and technical merit.

◊ Author revises draft.

◊ Author distributes revised draft to internal Ecology reviewers (section manager, technical specialist, client, other internal reviewers - optional).

Is report consistent with agency policy?

Are conclusions supported by data?

◊ Author prepares preliminary draft based on internal reviewers comments. Author responds to reviewers' comments.

◊ Author submits to support staff for formatting and grammar check

◊ Author reviews preliminary draft

◊ Author, client, and supervisors collaborate on external reviewer list

External reviewers:
Mandatory - EPA, affected tribes, regulated facilities;
Optional - PIO, science board, other agencies, watershed and other public groups (does not normally include public comment), consultants, contracted scientists.

◊ Author revises final draft based on external review comments. Author responds to reviewers' comments.

◊ Supervisor, section manager, and client review final draft. The policy review is included here.

◊ Author incorporates comments and submits to support staff for formatting. Author responds to reviewers' comments.

◊ Support staff gives final report to author, supervisor, and section manager for approval before printing and posting to the Internet.

◊ Support staff prints, distributes, and posts final report.

◊ Author submits final report to EPA for approval

Analytical Methods

◊ Analyst, supervisor, and lab manager collaborate to determine review process for project.

◊ Analyst prepares draft method report. Development includes peer input.

◊ Analyst(s) review draft method.

◊ Draft method revised and submitted to QA officer/ program technical specialist, lab director.

Is the method technically defensible?
Is the method clearly communicated?
Does method employ good laboratory practices?

◊ Analyst revised draft method. Analyst responds to reviewers' comments.

◊ Method could be finalized if in-house method.

◊ Draft method sent to external reviewers for comments (client, EPA).

◊ Method revised based on comments and finalized for printing. Analyst responds to reviewers' comments.

◊ Optional: Once method finalized it can be submitted to scientific body or journal for widespread use (ASTM, Standard Methods, AOAC, USEPA, etc)

◊ Analyst follows journal specific review process.

Journal Article

◊ Author prepares draft journal article.

◊ Draft reviewed by supervisor, section manager, program technical specialist, and optional selected reviewer(s).

◊ Author revises and formats draft for submission to journal.

◊ Author submits draft to journal.

Appendix A. Checklist for Technical Document Review

Title of document:_____

What decision/rule/regulation/action does this document support:

_____

Determine if this is a major scientific and technical document

◊ Is the document scientific or technical ____yes ____no?

◊ Is the document ____major or ____non-major?

Determine what peer review is needed

◊ If a major document, peer review is needed.

◊ If not a major document, is peer review still needed?

◊ When does peer review need to be done?

◊ How much time will be needed to conduct/complete the review?

◊ Are there court ordered deadlines or other constraints?

◊ Has senior management been informed of progress/problems?

◊ What would constitute success for this review?

Determine the resources for peer review

◊ What is the priority for this project relative to other projects under your responsibility?

◊ What resources are needed to conduct the review?

◊ Who will lead the peer review?

◊ Who will maintain the peer review record?

◊ Where will the peer review record be kept?

◊ What internal review is needed?

◊ What external review is needed?

◊ Has the charge been developed?

◊ Has internal and external coordination been initiated/completed?

◊ Have arrangements for interim/final sign-offs (e.g., for the charge, the panel of reviewers, on any changes to the final document) been made?

◊ How will results of the review be addressed in the final document?

Comments:

Appendix B. Reference Materials for Reviewers

Adapted from **Reviewing Others' Work**
from Technical Writing course by Stephanie Donich for EILS Program, May 1992

Things That Writers Like To Know About Writing Assignments They Get

- What is the purpose or objective of this document?
- What is the reader's knowledge of the subject?
- Anything useful I should know about the reader before I write?
- How many reviewers and readers will there be?
- Who will read for review?
- Who will read for information?
- Anything confidential about this assignment?
- What topics should be covered?
- What points should be covered under the topics?
- Any other documents/history on the subject I should review?
- Any preference on format?
- General length?
- Deadline for drafts? For final copies?
- Who or where are references I can use?
- Who or where are references I must use?
- What tone should I use?
- Any necessary technical details I should know?
- Any critical issues, sensitive points, or political hot spots I should be on the lookout for?

Reviewing

An Area That Invites Inquiry

Much effort has been expended on improving the writing ability of Federal employees, but little has been done to improve the equally difficult art of reviewing. Yet, anyone who has worked in a bureaucratic environment recognizes that irrational review practices are a major cause of bottlenecks and loss of productivity. Because of these practices, letters are released too late to achieve their purposes, typing facilities are overloaded, and originators of correspondence must give more attention to getting their material past the reviewers than to communicating with the addressees.

Reviews can be highly beneficial, and most writers will welcome a review that catches errors which might cause embarrassment or extra work. Unfortunately, many reviews result in nothing more than wasted effort and frustrations. Some of the causes of poor review practices are:

- *Personal Aversions To Certain Words And Phrases,* even though they are generally accepted by grammarians and writers. A letter or document prepared in final form represents an investment of funds and human resources. No one should nullify this investment because of purely personal preferences.

- *Excessive Fastidiousness On Rules***.** Many of the arbitrary rules of a previous generation no longer are accepted by progressive grammarians. Clear, effective writing, consistent with generally accepted modern usage, should be the criterion.

- *Exaggerated Efforts To Achieve Brevity.* Brevity may be the essence of literary merit, but to achieve it requires work, time, and a measure of talent. A reviewer who rejects material because he finds that he is able to eliminate an occasional word or phrase is not saving work, but causing it.

- *Change To Justify The Review***.** There seems to be a distinct tendency on the part of some reviewers to feel that the value of their review is in direct proportion to the number of "improvements" they are able to make. Most written material can be improved ad infinitum, but we are not required to turn out literary gems.

- *Vague Speculation On What Higher Levels Of Review Will Accept.* Here, we draw a sharp distinction between knowledge and speculation. Not infrequently, reviewers will turn back material that is acceptable to them but might possibly be rejected by someone at a higher organizational level. Few second guessers can boast high validity coefficients.

Reviewer's Checklist

Content

Read the document through at your normal reading rate to see if it sends the appropriate information to the appropriate person in a manner which will achieve the desired result.

◊ Is the purpose of the document clear and is it stated properly?

◊ Is the problem defined?

◊ Are all questions answered? Are answers easily found?

◊ Should material be added? Removed?

◊ Are any sections contradictory?

◊ Is the pace adjusted to fit the subject matter and the reader's knowledge?

◊ Is agency policy maintained?

◊ Are there enough facts to support the conclusions?

◊ Do conclusions flow logically from the facts?

◊ Do the recommendations flow logically from the conclusions?

◊ Are opinions stated as opinions?

◊ Is the information appropriate for the intended reader?

◊ Is the information appropriate for the intended purpose?

Organization

Reread the document to determine if the pieces of the story fit together in an orderly manner.

◊ Is the purpose clearly stated *at the beginning*?

◊ Are all elements (e.g., Abstract, Introduction, Recommendation) included as required by the standard format of the organization publishing the document.

◊ Is the material presented in an order best suited to the reader's needs?

◊ Are there enough headings? Effectively worded?

◊ Are there enough visual aids (e.g., graphs, tables, charts)? Properly located?

◊ Is appendix material essential? If so, is it referred to in text and keyed back to text?

◊ If several authors have contributed, are their mechanics of format and organization compatible? Consistent?

Writing

Paragraph organization

◊ Do all paragraphs have a topic sentence?

◊ Is the topic sentence near the beginning?

◊ Do all paragraphs have unity (one topic)?

◊ Do all paragraphs have smooth transitions?

◊ Should any paragraphs be combined?

◊ Should any paragraph be divided into two or more paragraphs?

Sentence structure

◊ Are sentences straightforward? Primary information in primary grammatical construction; secondary in subordinate?

◊ Are subjects and verbs immediately apparent?

◊ Is the information so paced that the reader does not have to stop to reread for meaning?

◊ Are sentences punctuated properly? (Comma after long introductory clause or phrase; commas around nonrestrictive clause; comma to prevent run-on sentences; hyphens between parts of compound adjectives.)

◊ Has the writer avoided: dangling modifier, misplaced modifier, incomplete comparison, nonparallel construction, disagreement between subject and verb or between pronoun and antecedent?

Word choice

◊ Did the writer use a complex or formal word where a simple word would do?

◊ Did the writer use abstract words for concrete ones?

◊ Did the writer use unfamiliar words for familiar ones?

◊ Are there vague pronouns?

◊ Is there deadwood (superfluous words, roundabout expressions)?

◊ Is there any noticeable redundancy?

◊ Are there meaningless or inexact qualifiers?

◊ Did the writer use jargon? Slang? Cliches?

◊ Did the writer use nonstandard abbreviations?

◊ Are there examples of inconsistent wording (names, titles, symbols)?

How To Give Constructive Criticism

- Get agreement on the standards to be used from the various levels of the organization.
- Set writing goals within those standards.
- Compare the completed assignment to the agreed upon goals and standards.
- Specifically target the weak areas of the document.
- Listen to the writer's reasoning for methods, procedures, ideas, or logic used in the document. (You may be persuaded.)
- Give specific suggestions for improvements.
- Get the writer's agreement to the changes you've described.
- Don’t rewrite the work. Point out the weaknesses and have the writer revise his/her own work.
- Don't expect the writer to write the document as you would. Look at the results. Ask yourself: Does it accomplish what it must accomplish?
- Tell the writer when he/she has accomplished the task satisfactorily.

Adapted from **Reviewing Technical Documents.**

by the Council of Biology Editors (1983)

Good Practice For Reviewers

Be careful in your reading. Authors frequently complain that reviewers' critiques give evidence of careless reading. Be objective in evaluating a manuscript and in writing comments. Avoid acrimony.

Be specific in your suggestions. The author of an excessively long manuscript will not be helped by a comment such as, "This manuscript is too long. Condense by half." Give specific directions for eliminating unimportant parts or for condensing others. Indicate errors in grammar or rhetoric. Call attention to verbose or unclear writing.

Checklist For Reviewers

◊ Is the purpose of the article made clear in the introduction?

◊ Are the experimental methods described adequately?

◊ Are the study design and methods appropriate for the purposes of the study? Have the procedures been presented in enough detail to enable a reader to duplicate them?

◊ Are there errors of fact or interpretation? Scan and spot-check.

◊ Is all of the discussion relevant?

◊ Has the author cited the pertinent, and only the pertinent, literature?

◊ Have any ideas been overemphasized or underemphasized? Suggest specific revisions.

◊ Should some sections of the manuscript be expanded, condensed, or omitted?

◊ Is any content repeated or duplicated? A common fault is repetition in the text of data in tables or figures. Suggest that tabular data be interpreted or summarized, not merely repeated, in the text.

◊ Are the author's statements clear? Challenge ambiguous statements. Suggest by examples how clarity can be achieved, but do not merely substitute your style for the author's.

◊ Are the form and arrangement of illustrations and tables satisfactory? Call attention to graphs and tables that are hard to read because they are crowded with too much information or to those that could save space if they were combined with other illustrations.

◊ Can the illustrations be improved? Do illustrations show what they purport to show?

◊ Is language appropriate for the intended audience?

◊ Are conclusions supported by data? Are recommendations reasonable?

Reference

Council of Biology Editors. 1983. Council of Biology Editors Style Manual, Fourth Edition. American Institute of Biological Sciences, Arlington, VA. 265 p.